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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Box Patent Application
Washington, D. C. 20231

Sir:

Transmitted herewith for filing under 37 CFR 1.53(b) are the specification and claims of the nonprovisional patent application of:

_____Ted Richards_____ for

Inventor(s)

_____RESPONDING TO REQUESTS FOR DATA_____

Title of Invention

APPLICATION ELEMENTS ENCLOSED:

1. _X_ Specification (total pages __19__ including:

    a.   __6__ pages of claims (21 claims)

    b.   __1__ page(s) Abstract

2. _X_ __3__ sheets of _X_ informal ___formal drawings (Figs. 1-4)

3. _X_ Oath or declaration of Applicant(s) (2 total pages)

    a.   _____ Newly executed (original or copy)

    b.   _X_ Unexecuted

    c.   _____ Copy from a prior application (37 CFR 1.63(d))

        (for continuation/divisional with Item 14 completed)

4._____ Deletion of Inventor(s)

    Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b)

5.___ Incorporation By Reference

    The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied in item 3b is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6.___ Microfiche Computer Program (Appendix)

APPLICATION PARTS ENCLOSED:

7.___ An assignment of the invention to _____(cover sheet & document(s))

8.___ 37 CFR 3.73(b) Statement (when there is an assignee)

9._X_ Power of Attorney

    a.   _____ Newly executed (original or copy)

    b.   _X_ Unexecuted

    c.   _____ Copy from a prior application

10.___ Information Disclosure Statement (IDS)/PTO-1449

_____ Copies of IDS Citations

11.___ A Preliminary Amendment

12. X Return Receipt Postcard (MPEP 503)

13. X A small entity statement under 37 C.F.R. §1.9 and §1.27 (unexecuted)

_____ Statement filed in prior application, status still proper and desired

14.___ If a Continuing Application, *check the appropriate box and supply the requisite information*:

☐ Continuation of prior application No.: _____ filed _____

☐ Divisional of prior application No.: _____ filed _____

☐ Continuation-in-part (CIP) of prior application No.: _____ filed _____

15.___ Amend the specification by inserting before the first line of page one: --This is a __continuation _____ divisional of application Serial No. _____ filed ____.--

16.___ Priority of application No. _____ filed in _____ on _____. Applicant hereby claims priority under 35 U.S.C. § 119.

___ A certified copy of priority application No. _____ is enclosed.

___ A certified copy of priority application No. _____ has been filed in prior application

S.N. _____ filed _____

17.___ Other (identify) _____

The filing fee is calculated as follows:

CLAIMS AS FILED, LESS ANY CLAIMS CANCELLED BY AMENDMENT

					Rate			Fee	
	Number Filed		Number Extra*		Small Entity	Other Entity		Small Entity	Other Entity
Total Claims	21	=	1	x	$ 9	$ 18	=	$ 9	$ 0
Indep. Claims	6	=	3	x	$ 39	$ 78	=	$117	$ 0
Multiple Dependent Claims Presented: Yes____ No X					$130	$260	=	$	$ 0
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18. _X_ A check in the amount of $ _471.00_ to cover the filing fee.

19. ___ Please charge Deposit Account No. _03-3125_ in the amount of _____ for recordation of the Assignment.

20. _X_ The Commissioner is hereby authorized to charge any additional fees which may be required in connection with the following or credit any overpayment to Deposit Account No. _03-3125_.

   _X_   Filing fees under 37 C.F.R. § 1.16.

   _X_   Patent application processing fees under 37 C.F.R. §1.17.

   ____   The issue fee set in 37 C.F.R. §1.18 at or before mailing of the Notice of Allowance, pursuant to 37 C.F.R. §1.311(b).

21. _X_ Three copies of this sheet are enclosed.

22. ___ Other (identify) _____

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Respectfully submitted,

April 14, 2000
Date

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Ted Richards

Serial No. : Not Yet Known

Filed : Filing Herewith

For : RESPONDING TO REQUESTS FOR DATA

> 1185 Avenue of the Americas
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Honorable Assistant Commissioner for Patents
Washington, D.C. 20231

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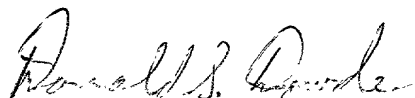### FOR ABOVE-IDENTIFIED APPLICATION

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I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above and is addressed to the Honorable Assistant Commissioner for Patents, Washington, D.C. 20231.

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Applicant or Patentee:_____Ted Richards_____
Serial or Patent No.: Not Yet Known_____
Filed or Issued:___Concurrently Herewith_____
Title of Invention or Patent: RESPONDING TO REQUESTS FOR DATA_____

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS UNDER 37 C.F.R. §1.9(f) AND §1.27(c) - SMALL BUSINESS CONCERN

I hereby declare that I am:

_____   *the owner of the small business concern identified below.*

__X__   *an official of the small business concern empowered to act on behalf of the concern identified below:*

Name of Concern:____Audio Highway_____
Address of Concern:___20600 Mariani Avenue, Cupertino, California 95014_____

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 C.F.R. §121.3-18, reproduced in 37 C.F.R. §1.9(d), for purposes of paying reduced fees under 35 U.S.C. §41(a) and §41(b), in that the number of employees of the concern, including those of its affiliates, does not exceed five hundred (500) persons. For purposes of this verified statement, the number of employees of the business concern is the average number, over the previous fiscal year, of the persons employed by the business concern on a full-time, part-time, or temporary basis during each pay period of the fiscal year, and concerns are affiliates of each other when, either directly or indirectly, one concern controls or has power to control the other, or a third party or parties controls or has power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention entitled

_____RESPONDING TO REQUESTS FOR DATA_____*described in:*

__X___ *the specification filed herewith*
_____ *application serial no. _____ filed _____Patent No. _____*
issued_____
If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below[a] and no rights to the invention are held by any person, other than the inventor, who could not qualify as an independent inventor under 37 C.F.R. §1.9(c)[b], any concern which could not qualify as a small business concern under 37 C.F.R. §1.9(d)[b] or as a nonprofit organization under 37 C.F.R. §1.9(e)[b].

Name:__None_____
Address:_____

____*Individual* _X_ *Small Business Concern* ___*Nonprofit Organization*

[a] *NOTE: Separate verified statements are required for each named person, concern, or organization having rights to the invention averring to their status as small entities. 37 C.F.R. §1.27.*

[b] *Page 2.*

(c) An independent inventor as used in this chapter means any inventor who (1) has not assigned, granted, conveyed, or licensed, and (2) is under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section.

(d) A small business concern as used in this chapter means any business concern as defined by the Small Business Administration in 13 C.F.R. §121.3-18, published on September 30, 1982 at 47 FR 43273. For the convenience of the users of these regulations, that definition states:

§121.3-18 Definition of small business for paying reduced patent fees under Title 35, U.S. Code.

(a) Pursuant to Pub. L. 97-247, a small business concern for purposes of paying reduced fees under 35 U.S. Code 41(a) and (b) to the Patent and Trademark Office means any business concern (1) whose number of employees, including those of its affiliates, does not exceed 500 persons and (2) which has not assigned, granted, conveyed, or licensed, and is under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as a small business concern or a nonprofit organization under this section. For the purpose of this section concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both. The number of employees of the business concern is the average over the fiscal year of the persons employed during each of the pay periods of the fiscal year. Employees are those persons employed on a full-time, part-time or temporary basis during the previous fiscal year of the concern.

(b) If the Patent and Trademark Office determines that a concern is not eligible as a small business concern within this section, the concern shall have a right to appeal that determination to the Small Business Administration. The Patent and Trademark Office shall transmit its written decision and the pertinent size determination file to the SBA in the event of such adverse determination and size appeal. Such appeals by concerns should be submitted to the SBA at 1441 L. Street, N.W., Washington, D.C. 20416 (Attention: SBA Office of General Counsel). The appeal should state the basis upon which it is claimed that the Patent and Trademark Office initial size determination on the concern was in error; and the facts and arguments supporting the concern's claimed status as a small business concern under this section.

(e) A nonprofit organization as used in this chapter means (1) a university or other institution of higher education located in any country; (2) an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)(3)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)); (3) any nonprofit scientific or educational organization qualified under a nonprofit organization statute of a state of this country (35 U.S.C. 201(i)); or (4) any nonprofit organization located in a foreign country which would qualify as a nonprofit organization under paragraphs (e)(2) or (3) of this section if it were located in this country.

37 C.F.R. §1.28(b)

(b) Once status as a small entity has been established in an application or patent, fees as a small entity may thereafter be paid in that application or patent without regard to a change in status until the issue fee is due or any maintenance fee is due. Notification of any change in status resulting in loss of entitlement to small entity status must be filed in the application or patent prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate pursuant to §1.9 of this part. The notification of change in status may be signed by the applicant, any person authorized to sign on behalf of the assignee, or an attorney or agent of record or acting in a representative capacity pursuant to §1.34(a) of this part.

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. 37 C.F.R. §1.28(b)^c.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing: ___*Nathan Schulhof*_____

*Title In Organization:*_____*President*_____

Address: _c/o Audio Highway, 20600 Mariani Avenue, Cupertino, California 95014_____

_____

*Signature:*_____

*Date of Signature:*_____

RESPONDING TO REQUESTS FOR DATA

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to responding to requests for data and, more particularly, to adaptive provision of business announcements and related information in connection with audio and other data requested by a user.

Description of the Prior Art

Delivery of a variety of data including audio data, selected for downloading and playback by a user, over wide area networks such as the Internet provides new challenges and new opportunities for a commercial enterprise. One opportunity, and corresponding challenge, is use of the network contact with the user to provide other information, such as advertising and announcements of availability of related offerings, that may be of interest to the user, together with the data downloaded to the user's receiver. An approach that varies the user information items with the user's past and present choices of data has not been available heretofore.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the invention is to provide a method and system that can analyze a user's current and previous choices, if available, of a variety of data including audio data and can determine which related information is appropriate to present to the user when the current choice of data is delivered to the user. Another object is to provide such a method and system with a capability of weighting the user's present and past choices of data so that recent trends in the user's choices and taste are given preferred treatment over older user's choices that have been supplanted by other types of choices. Preferably, a count should be kept so that the user is not presented with the same information more than a selected number of times.

The foregoing and other objects are attained in accordance with the invention by providing a method of responding to a request, the method comprising the steps of establishing a plurality of categories of potential requests and associating a plurality of sets of data with each of the categories. Then, in response to receipt of a request, one of the categories is related to the request, and a response is prepared including at least two sets of data from the related category.

In accordance with an independent aspect of the invention, there is provided a method of responding to a request, the method comprising the steps of establishing a plurality of categories of potential requests, associating a plurality of sets of data with each of the categories, and archiving successive requests from a given requester. Then, in response to receipt of a new request from the same requester, one of the categories is related to an archived request and the same or a different category is related to the new request. A response is prepared including at least two sets of data from at least one related category or at least one set of data from each of at least two related categories.

In accordance with another independent aspect of the invention, there is provided a system for responding to a request, the system comprising a store for data organized in a plurality of categories each including a plurality of sets of data and means responsive to receipt of a request for relating one of the categories to the request and preparing a response including at least two sets of data from the related category.

In accordance with another independent aspect of the invention, there is provided a system for responding to a request, the system comprising a store for data organized in a plurality of categories each including a plurality of sets of data, and means for archiving successive requests from a given requester. Means is provided responsive to receipt of a new request from the same requester for relating one of the categories to an archived request and the same or a different category to the new request and preparing a response including at least two sets of data from at least one related category or at least one set of data from each of at least two related categories.

In accordance with other independent aspects of the invention, a method and system are provided having the foregoing and other features.

The invention thus provides a system for noting and archiving user choices of data to be downloaded to a storage/playback unit. These user choices, past and present, are analyzed to estimate user interests. Each time a user chooses data for downloading and subsequent playback, the data chosen are analyzed and assigned to one or more "interest" categories. Optionally, the date and the number of selections that fall into each interest category are also noted and archived. Information on related subjects that may be of interest to the user is identified, based on the interest categories associated with the user's past and present data selections, and this information

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is presented to the user together with the data chosen by the user. Optionally, the system assigns weights to the user's present and past choices of data, weighting the present and most recent past choices more heavily, in order to emphasize developing trends in the user's taste. The number of times a provider's user information item is combined with any user's data selection can be accumulated and used for provider billing, monitoring or other purposes.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the objects, features and advantages of the invention can be gained from the following description of the preferred embodiments thereof, in conjunction with the appended figures of the drawing, wherein:

Figure 1 is an overview of a system suitable for practicing the invention.

Figure 2 is a schematic view illustrating use of the invention in one embodiment.

Figure 3 is a schematic view of apparatus for identification of a user interest category according to the invention.

Figure 4 is a flow chart illustrating a method for practicing the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 is an overview of a system for practicing a preferred embodiment of the invention, relating to a user's request for audio data. A media transaction and media client device 15 provides an interface between user devices 16 and 16A, such as a hand-held device, a computer or other audio data repository, and a network browser 17. The browser 17, in turn, provides an interface to a wide area network 41, such as the Internet. The network 41 is connected to an audio server 42 that receives user audio data requests, extracts the requested audio data from one or more audio databases, combines the requested audio data with user information, pulled from another database, and assists in downloading the combined audio data and user information for the user's consumption at the user device 15. Preferably, use of the media transaction and media client device 15 and network browser 17 is transparent to the user.

Figure 2 illustrates one use of the invention. A user or subscriber 11 carries a portable storage and (optional) playback unit (PSPU) 16 that may be connected to a media transaction and media client device 15, such as a user computer or other audio data receptor. The media client

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device 15 is optionally connected to a playback device 16B, such as a CD ROM player/recorder. The SPSU 13 may be a conventional diskette (optionally including a diskette playback device), a CD ROM diskette (optionally including a CD ROM playback device) or any other suitable portable audio data storage medium and (optional) playback device for the storage medium. The media transaction and media client device 15 may be a user computer, a relatively "dumb" terminal that receives audio data and directs these data to the SPSU 13, or a multiple operating system device that accepts and supports two or more different digital audio file formats, using a CODEC or other suitable multiple format recognition system.

The media transaction and media client device 15 is connected through a browser and through a wide area network, such as the Internet (shown as a "cloud" 41), to an audio server 43. The audio server 43 is connected to one or more audio databases 45, 47, 49 that contain audio data selections, each selection being specified by an indicium or other identification symbol. The audio server 43 is also connected to a user information server 51 that includes a user database 53 and a user information library 55 containing a plurality of user information, preferably provided in the same audio format as the audio data items in the database 45. In one embodiment of the invention, the user database 53 identifies each user who has previously used the audio server 43 to download at least one audio data selection. Each time the user 11 requests and downloads one or more audio data selections using the audio server 43, the user database 53 analyzes the user's selections and assigns each such selection to one or more user interest categories, discussed in the following. Each individual user interest category, or selected set of user interest categories, has a corresponding set of user information contained in the user information library 55.

A new user will not yet have established a user interest category (or set thereof), and the user information database optionally uses only this user's current (and first) audio data selection to identify one or more user interest categories for this user for the user database 53. A user who has previously downloaded one or more audio data selections using the system will have one or more user interest categories (or set thereof) already established within the user database 53.

After the user 11 has indicated the present audio data selections, the audio data server combines the user's audio data selections with one or more user information items from the user information library 55, based on the user's currently identified user interest category (or set thereof), and downloads this combined set of data from the audio databases) 45 through the audio

data server 43, through the Internet 41 to the user computer 15. The user 11 optionally plays back an audio data selection using the personal computer 15 or downloads the audio data selection to the SPSU 16 or 16B for subsequent playback at a convenient time. When an audio data selection is played back by the user 11, the playback system will also play back the associated user information item(s) that were combined with this audio data selection by the audio data server 43.

Figure 3 schematically illustrates apparatus 61 suitable for user identification and analysis of a user audio data selection, to associate the user with one or more user interest categories with associated user information items. The apparatus 61 includes a user information server 51, which is connected to an audio data server 43 (not shown in Figure 2) and to a user information database 53. The user information database 53 includes a user identification module 63 that receives the user ID and user audio data request and determines whether the present requesting user name or identifying indicium is already in a user library 65, based on previous audio data requests by this user. If this user name or identifying indicium is not already in the user library 65, the user's name or indicium is added to the list of users (or their indicia) in the library. The user's audio data selections are now received and examined by an audio data selection analyzer 67. The analyzer assigns each audio data selection to one or more user interest categories, based on the subject matter in the audio data selected, and each user interest category is given an additional mark or count corresponding to this most recent audio data selection. Optionally, the date this most recent audio data selection was received is recorded together with the mark or count for the corresponding user interest category. An example of categories of potential requests from users is set forth in the following, which includes political, economic and cultural/social news categories, music categories and a miscellaneous or default category that corresponds to audio data selections that have no match in any other user interest category

I. News

    A. Political

        1. Domestic only

            a. Local and/or regional

            b. Statewide and/or national

        2. Foreign only

a. Focus on specified country

b. Focus on specified region

3. Domestic and foreign

B. Economic

1. Domestic

a. Securities markets

b. Fiscal and monetary policy

c. Focus on companies in specified area

d. Focus on companies in specified geographic region

2. Foreign

a. Securities markets

b. Fiscal and monetary policy

c. Focus on specified country or region

C. Cultural and social

1. Local events and developments

2. National events and developments

3. Foreign events and developments

4. Arts

5. Entertainment

II. Music

A. Current popular

B. Older popular

C. Semi-classical

D. Classical

1. Pre-baroque

2. Baroque

3. Romantic

4. Modern

5. Operas

6. Operettas

6

7. Lieder

8. Ballet and other dance music

III. Technology

A. Telecommunications

B. Electronics and related technologies

C. Space exploration and colonization

D. Manufacturing and operations

E. Transportation and automotive vehicles

F. Chemical technology

G. Biotechnology

IV. Miscellaneous (default; cannot be matched elsewhere)

The categories can be selected in accordance with the invention from the group consisting of the ones set forth above, or from subgroups thereof.

In a first approach, each user interest category that has accumulated at least a selected number (e.g., 1 or 5) of marks or counts, from past and present audio data selections made by this user, has at least one corresponding user information item associated with the user audio data request. The user information item, obtained from a user information library 55 that is connected to the audio data selection analyzer 67, is combined with the corresponding audio data selection and is delivered to the user's computer 15 as indicated in Figure 1. The user information item may be related advertising of a product (goods and services) that may be of interest to this user, based on the user's past and present audio data selections; may be one or more announcements of new audio data selections that have recently become available; or may be some other information that is related to the user's past and present audio data selections. Preferably, no more than a modest number of user information items, such as between 3 and 9, are included with an audio data selection that has a length of no more than 30 minutes.

In a second approach, each mark or count for a user interest category is dated, and each accumulated mark or count is weighted according to when the corresponding audio data selection was made by the user. For example, each audio data selection can be assigned a non-negative selection integer i, which is incremented by one ($i \longrightarrow i+1$) each time another audio data selection is received by the audio data server 43 (Figure 1). This selection integer is also

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assigned to the mark or count $c(i)$ of the user interest category corresponding to the audio data selection number i; $c(i) = 1$ if the audio data selection has an affirmative mark or count for this user interest category; otherwise, $c(i) = 0$. A non-negative weight $w(i)$ is also assigned to the audio data selection number i, where the sequence of weights $\{w(i)\}$ is preferably monotonically increasing (to weight recent selections more heavily) and is preferably (re)normalized so that the sum of the weights is equal to a selected, fixed number, such as 1. The most recent audio data selection, and the corresponding mark or count for each associated user interest category, is thus assigned the highest selection integer, denoted I. A weighted number

$$S = \sum_{i=1}^{I} w(i)\, c(i) \tag{1}$$

is then compared with a selected threshold value S_{thr}. If $S \geq S_{thr}$, user information from the corresponding user interest category is combined with the audio data selected by the user; if $S < S_{thr}$, this user information is not combined with the audio data selected by the user. This second approach weights the marks or counts so that more recent "hits" for the corresponding user interest category are given greater importance. Among other things, this second approach tends to give stronger emphasis to recent trends in the user's taste in audio data selections.

In a third approach, which can be combined with the first or second approach, a given user information item, corresponding to a particular user interest category, can be deleted from the group of user information items that are combined with the user's audio data selection if this given user information item has already been combined with earlier audio data selections for this user at least a threshold number of times. This reduces the possibility that a given user information item will become "shopworn" for this user. A user information item can "expire" and be replaced by one or more other user information items, from the same provider or from a different provider.

In a fourth approach, a selected and fixed set of user information items is combined with the audio data selections for delivery to the user, ignoring the nature of the particular selections made by the user.

In an alternative or supplemental approach, a user or subscriber to the audio data service may be required to complete a user information sheet, indicating the types of audio data that the

user is presently interested in downloading. Some of the questions to be answered by the user may be keyed to a list of user interest categories, such as the preceding list, and each interest category checked off by the user may be assigned one or more marks or counts. Optionally, these initial marks or counts may also be discounted with the passage of time, using a discounting or weighting algorithm such as Eq. (1).

Figure 4 is a flow chart illustrating practice of the invention in one embodiment. In step 71, the system receives a user's audio data selection(s). In step 73, the system analyzes the user's present audio data selection and, if available, previous audio data selections, with reference to at least one user information category. In step 75, the system identifies at least one user information category that is related to at least one of the user's present or previous audio data selections. In step 77, the system selects at least one user information item from an identified user information category. In step 79, the system relates, associates or combines the selected user information item with at least one of the user's present audio data selections. In step 81 (optional), the system delivers the user's audio data selection, associated or combined with the selected user information item.

Some of the audio data selections made by the user may have restrictions associated with the selection. For example, a particular music, literary or dramatic selection may be registered with the American Society of Composers, Authors and Playrights (ASCAP) and may require payment of a small sum to ASCAP each time the work is performed (here, equated with selection for downloading by the user). Each audio data selection to which an ASCAP or other restriction applies can be accounted for in a separate counting process, and required payments or reports for that selection can be made periodically to the responsible agency.

Combination of one or more user information items with an associated audio data selection, for delivery as an integrated audio data unit to the user, may be implemented using a transfer protocol such as TRANZACT.DLL, which connects to the audio data server and allows establishment of a "pipe" between server and user that satisfies the requirements of the audio content provider and of the user information provider (for example, an advertiser). TRANZACT.DLL works at the (user) computer level and at the server level.

The Audio Server API primarily uses eight commands for export of server function, each command having an appended prefix, "AhAs", indicating an use of an audio server. These

commands, which can be added to as the server activities are expanded, are the following.

AhAsInitialize. This command initializes the audio server private data structures maintained by the API. No parameters are required. The command returns True, if the API is successfully initialized and returns False otherwise.

AhAsOpenConnection. This command opens a connection to the audio server, using the user name and password. Required parameters are szUserName (a pointer to a null-terminated string containing the user's name) and szUserPassword (a pointer to a null-terminated string containing the user's password; this password may be a transformed version of the user's selected password). The command returns Connection_Handle (a 32-bit alphanumeric quantity), if the connection is successfully opened, and returns Null or Zero otherwise.

AhAsCloseConnection. This command closes a connection identified by the passed Connection_Handle. This call will also delete any resources that were allocated for the connection. A required parameter is the Connection_Handle that identifies the connection to be closed. The command returns Void if the connection is successfully closed and No Return Value otherwise.

AhAsGetFile. This command downloads a specified file, using a SendMessage call to the passed HWND to indicate progress in the download process. The required parameters are three Connection_Handle indicia: szRemoteFileName (a pointer to a null-terminated string that contains the file name on the remote machine, which is to be downloaded), szLocalFileName (a pointer to a null-terminated string that contains the file name on the local machine, which is the file to be created by the download), and hStatusWind (a handle for a Window to which status or progress is reported). The returns are an unsigned long, which is the count of the bytes transferred (successful) and Null or Zero (otherwise). This call will also release any resources that were allocated for the connection.

AhAsGetFileWithCallback. This command is a second version of the Get File command, to be used by an application written in C or C++, where it is relatively easy to define a callback function. Return parameters are connection (a handle for an open connection), szLocalFileName (a pointer to a null-terminated string that contains the file name on the local machine, which is the file to be created by the download), and pStatusFunc (a pointer to a status function that is called to report status or progress). The returns are an unsigned long, which is the count of the

bytes transferred (successful) and Null or Zero (otherwise).

AhAsGetShoppingCart. This command retrieves the "shopping cart" or current download list for the user identified by the passed connection. The list is written to a file in a format to be defined. At a later time, this function, or a variant thereof, may return an array of records. Required parameters are connection (a handle for an open connection) and szLocalFileName (a pointer to a null-terminated string that contains the file name on the local machine, which is the file to be created by the download). The Returns are True, if successful, and False, otherwise.

AhAsCurDownloadMetric(). This command retrieves from the server a metric that indicates the server's current download performance. The units of the metric can be kilobytes per second, megabytes per minute, or some other unit that the application can use to more accurately estimate the amount of time a given download will require. No parameters are required, and the Return is a Download_Metric, a 32-bit quantity to be defined.

AhAsServerStats. This command fills in a Server_Status structure, passed as a parameter, with the value(s) that indicate(s) the current status of the audio server. The Server_Status structure is to be defined. The function is used primarily for diagnostics and debugging. A required parameter is pServerStats (a pointer to a server status record). The Returns are Void and No Return Value.

At the user end, a network browser 17 (Figure 1), such as Netscape or Microsoft Explorer, preferably provides a connection between the network and the user's media transaction and media client device (e.g., a computer employed by the user to download audio data selections). The screens and command or dialog buttons provided for the user may have any reasonable format and can be developed using Microsoft Development Toolkit or any other suitable tools for input of information by, and presentation of information to, the user.

Audio file client software must be installed at the user's computer before an audio file can be requested, downloaded from the audio server and played back. This software is installed between the browser, or network interface, and the user's computer or other audio data receptor device, to facilitate a user's request for downloading of audio data and to provide whatever user information is appropriate and available to facilitate choice of one or more user information items to associate with the audio data requested by the user.

A transfer protocol preferably also includes a separate counting module 69 (Figure 3) that

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accumulates the number of times, within a selected time interval, such as one month, that each user information item is combined with any user's audio data selection. The output of this counting module 69 can serve as the basis for an accounting report to the provider of this user information item, for provider billing, monitoring or other purposes.

The preceding discussion has focused on downloading of a user's request for selected audio data and associating with, or appending to, this audio data one or more user information items, selected with reference to information on the user contained in a user database that is queried whenever a user audio data request is received. The audio data may be replaced by video data, animation data or multimedia data requested by the user, with an appropriate change being made in the format of the user information item(s) appended to the audio/video/animation/multimedia data requested by the user. That is, the appended user information item(s) are preferably presented in the same format (audio or video or animation or multimedia) in which the user requested data are presented to the user.

The preferred embodiments of the invention described above relate primarily to the case where audio data are involved. The invention is clearly applicable, however, to cases involving other kinds of data.

Thus there is provided in accordance with the invention a novel and highly effective system and method for adaptive provision of business announcements and related information in connection with audio and other data requested by a user. The embodiments of the invention described above are merely exemplary, and the invention extends to all embodiments thereof that fall within the scope of the appended claims.

Claims:

1. A method of responding to a request, the method comprising the steps of:

establishing a plurality of categories of potential requests;

associating a plurality of sets of data with each of the categories; and,

in response to receipt of a request, relating one of the categories to the request and preparing a response including at least two sets of data from the related category.

2. A method according to claim 1 wherein said categories are selected from the group consisting of news, music and technology.

3. A method of responding to a request, the method comprising the steps of:

establishing a plurality of categories of potential requests;

associating a plurality of sets of data with each of the categories;

archiving successive requests from a given requester; and,

in response to receipt of a new request from the same requester, relating one of the categories to an archived request and the same or a different category to the new request and preparing a response including at least two sets of data from at least one related category or at least one set of data from each of at least two related categories.

4. A method according to claim 3 wherein said categories are selected from the group consisting of news, music and technology.

5. A method for providing user information related to a user's selection of audio data, the method comprising the steps of:

receiving a user's selection of audio data and an indicium identifying the user;

analyzing the user's present selection of audio data and previous selections, if any, of audio data, and identifying at least one user interest category based on the user's present and previous audio data selections;

selecting at least one user information item from the at least one identified user interest category;

associating or combining the at least one user information item with the user's audio data selection; and

delivering the associated or combined at least one user information item and the user's audio data selection to the user over an electronic network.

6.   The method of claim 5, wherein said step of analyzing and identifying comprises the steps of:

assigning each of said user's present audio data selections and said user's previous audio data selections to said at least one user interest category, and counting the number of assignments to each of said at least one user interest category; and

when the accumulated number of assignments to a selected one of said at least one user interest category is greater than a selected threshold number, identifying the selected one of said at least one user interest category as a category from which said at least one user information item is selected.

7.   The method of claim 5, wherein said step of analyzing and identifying comprises the steps of:

assigning each of said user's present audio data selections and said user's previous audio data selections to said at least one user interest category, assigning each of said user's present audio data selections and each of said user's previous audio data selections an approximate time at which said audio data selection was received, assigning each of said audio data selections a weighting factor that decreases as the difference between a present time and the approximate time at which said audio data selection was received, multiplying the numerical value of an assignment to each of said at least one user interest category by a corresponding weighting factor to produce a numerical value for a weighted assignment to each of said at least one user interest category, and counting the numerical value of the weighted assignment to each of said at least one user interest category; and

when the accumulated number of weighted assignments to a selected one of said at least one user interest category is greater than a selected threshold number, identifying the selected one of said at least one user interest category as a category from which said at least one user

information item is selected.

8. The method of claim 5, further comprising the step of choosing said at least one user interest category from the group of categories consisting of political news, economic news, cultural news, social news, technology news and music.

9. The method of claim 5, further comprising the step of selecting said at least one user information item to be an advertisement of at least one product that is related to said at least one user interest category.

10. A system for responding to a request, the system comprising:
a store for data organized in a plurality of categories each including a plurality of sets of data; and
means responsive to receipt of a request for relating one of the categories to the request and preparing a response including at least two sets of data from the related category.

11. A system according to claim 10 wherein said categories are selected from the group consisting of news, music and technology.

12. A system for responding to a request, the system comprising;
a store for data organized in a plurality of categories each including a plurality of sets of data;
means for archiving successive requests from a given requester; and
means responsive to receipt of a new request from the same requester for relating one of the categories to an archived request and the same or a different category to the new request and preparing a response including at least two sets of data from at least one related category or at least one set of data from each of at least two related categories.

13. A system according to claim 12 wherein said categories are selected from the group consisting of news, music and technology.

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14. A system for providing user information related to a user's selection of audio data, the system comprising:

an audio data server that receives a user's selection of audio data and an indicium identifying the user;

a user information server that analyzes the user's present selection of audio data and previous selections, if any, of audio data, that identifies at least one user interest category based on the user's present and previous audio data selections that selects at least one user information item from the at least one identified user interest category, and that associates or combines the at least one user information item with the user's audio data selection; and

an audio data delivery system that delivers the associated or combined at least one user information item and the user's audio data selection to the user over an electronic network.

15. The system of claim 14, wherein said user information server assigns each of said user's present audio data selections and said user's previous audio data selections to said at least one user interest category, and counts the number of assignments to each of said at least one user interest category; and

when the accumulated number of assignments to a selected one of said at least one user interest category is greater than a selected threshold number, said user information server identifies the selected one of said at least one user interest category as a category from which said at least one user information item is selected.

16. The system of claim 14, wherein said user information server assigns each of said user's present audio data selections and said user's previous audio data selections to said at least one user interest category, assigns each of said user's present audio data selections and each of said user's previous audio data selections an approximate time at which said audio data selection was received, assigns each of said audio data selections a weighting factor that decreases as the difference between a present time and the approximate time at which said audio data selection was received, multiplies the numerical value of an assignment to each of said at least one user interest category by a corresponding weighting factor to produce a numerical value for a weighted

assignment to each of said at least one user interest category, and counts the numerical value of the weighted assignment to each of said at least one user interest category; and

when the accumulated number of weighted assignments to a selected one of said at least one user interest category is greater than a selected threshold number, said user information server identifies the selected one of said at least one user interest category as a category from which said at least one user information item is selected.

17. The system of claim 14, wherein said at least one user interest category is chosen from the group of categories consisting of political news, economic news, cultural news, social news, technology news and music.

18. The system of claim 14, wherein said at least one user information item is selected to be an advertisement of at least one product that is related to said at least one user interest category.

19. A method according to claim 2 wherein said news is selected from the group consisting of political news, economic news, and cultural and social news.

20. A method according to claim 19 wherein:
said political news is selected from the group consisting of domestic political news and foreign political news;
said economic news is selected from the group consisting of domestic economic news and foreign economic news; and
said social and cultural news is selected from the group consisting of local events and developments, national events and developments, foreign events and developments, the arts, and entertainment; and wherein:
said music is selected from the group consisting of current popular music, older popular music, semi classical music, and classical music; and
said technology is selected from the group consisting of telecommunications; electronics and related technologies; space exploration and colonization; manufacturing and operations;

transportation and automotive vehicles; chemical technology; and biotechnology.

21.　　Apparatus according to claim 19 wherein said classical music is selected from the group consisting of pre-baroque music, baroque music, romantic music, modern music, operas, operettas, lieder and ballet and other dance music.

ABSTRACT OF THE DISCLOSURE

A user information item is associated with a data set selected by a user for delivery over an electronic network. The user's present and previous data selections are analyzed to identify a user information category related to at least one of these data selections, and the user information item is chosen from the identified user information category. User information items can be combined or associated with a video, animation or multimedia data set selected by a user for delivery over an electronic network.

Figure 1

Figure 2

Figure 3

71 System Receives User's
Audio Data Selection(s)

73 System Analyzes User's
Present/Previous Audio Data
Selections

75 System Identifies *at* Least
One User Info. Category Related
to User's Present/Previous Audio
Data Selections

77 System Selects at Least One
User Info. Item From Identified
User Info. Category

79 System Associates or
Combines Selected User Info.
Item with at Least One of User's
Present Audio Data Selections

81 System Delivers Selected
User Info. Item Associated or
Combined with Present Audio
Data Selection(s) to User
(Optional)

Figure 4

DECLARATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.
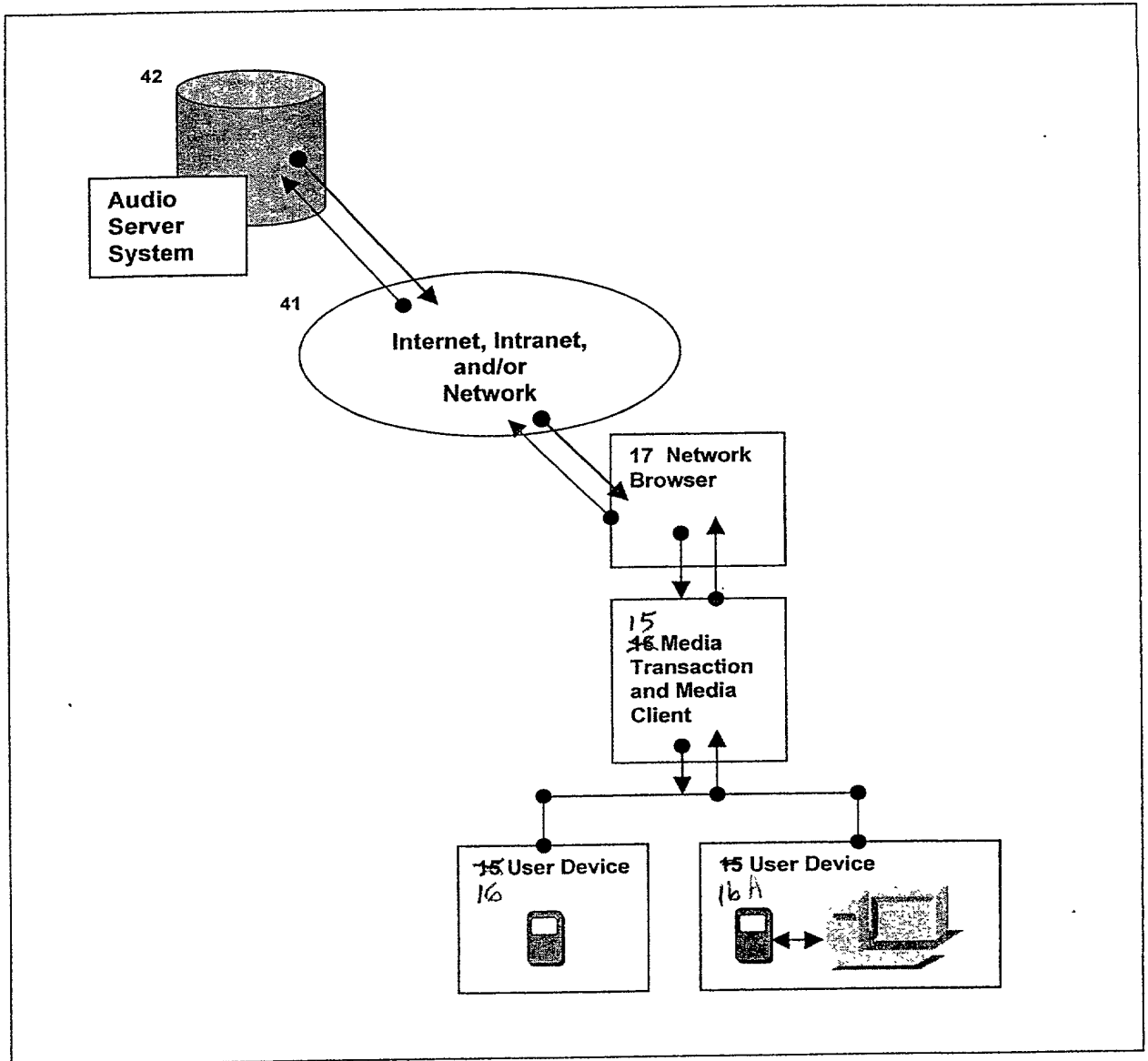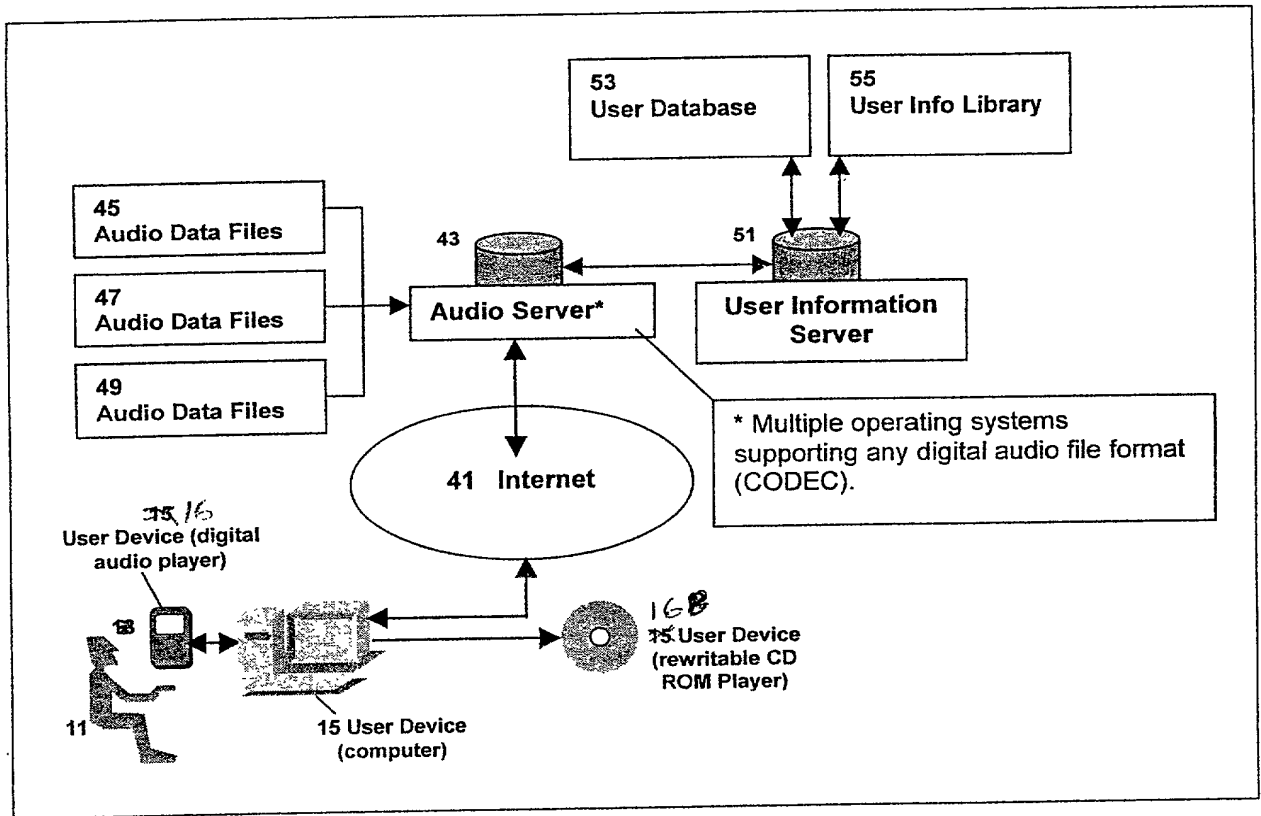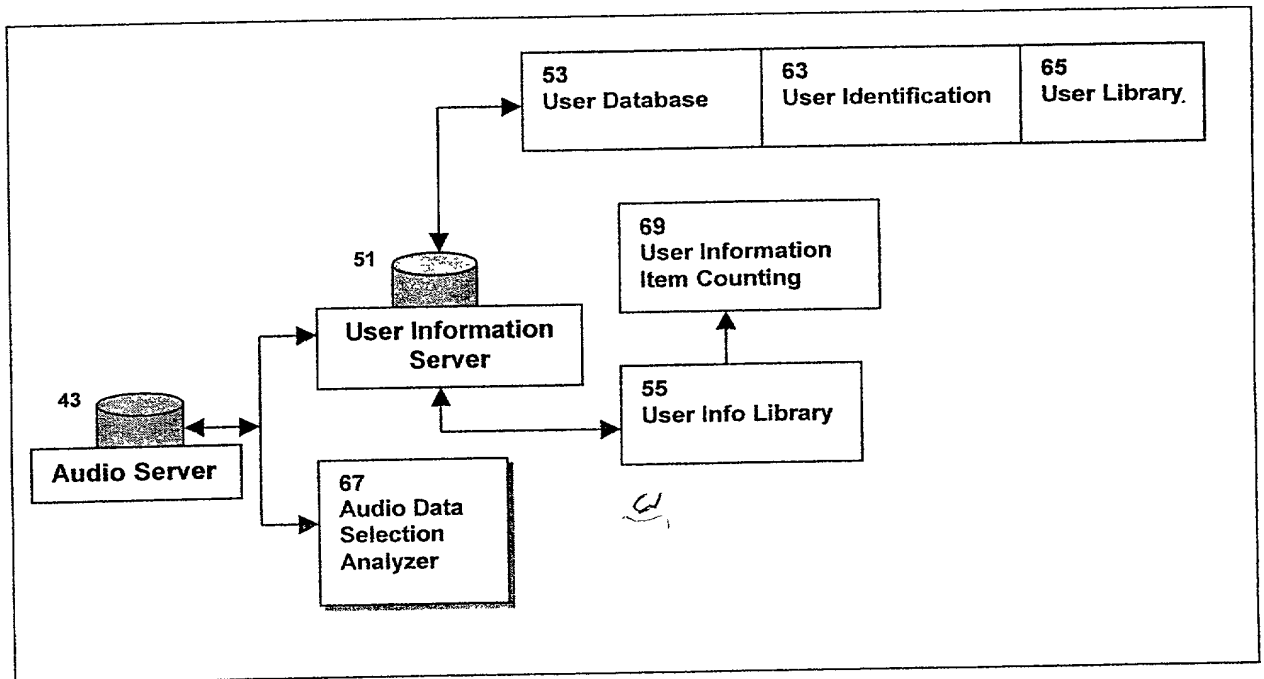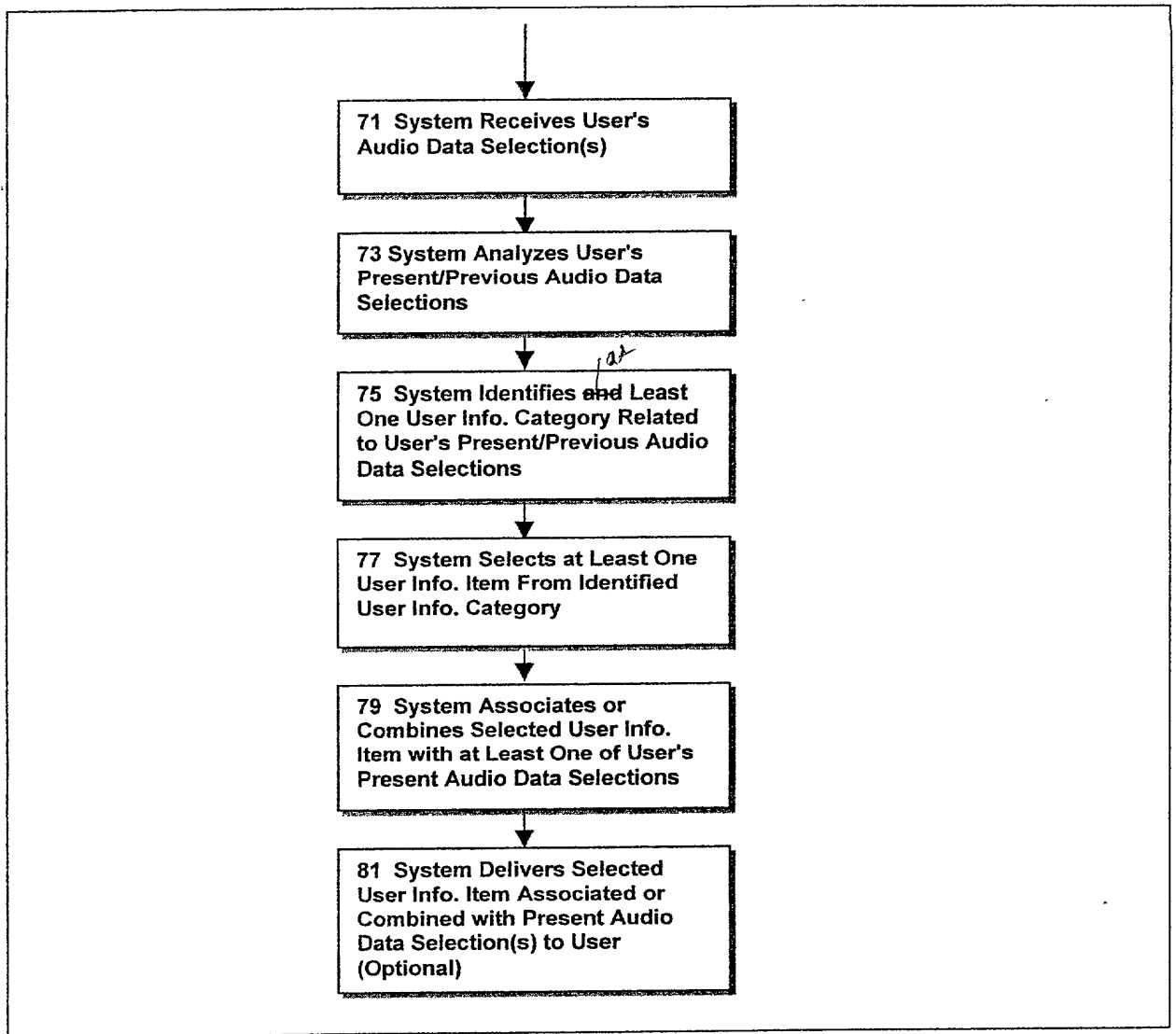
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

RESPONDING TO REQUESTS FOR DATA

(Title of Invention)

the specification of which:
(check one)

      __X__   *is attached hereto.*

      ___   *was filed on* _____

      Application Docket No. __6057/61524_____

      and was amended by _____ .
                                (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)   *Priority Claimed*

Number	*Country*	*Filing Date*	*Yes*	*No*
_____	_____	_____	___	___
_____	_____	_____	___	___

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States Application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	*Filing Date*	*Status*
_____	_____	_____
_____	_____	_____
_____	_____	_____

*And I hereby appoint **Donald S. Dowden (Reg. No. 20,701), Ivan S. Kavrukov (Reg. No. 25161), Thomas F. Moran (Reg. No. 16579; Christopher C. Dunham (Reg. No. 22031); Norman H. Zivin (Reg. No. 25385), John P. White (Reg. No. 28678); Thomas G. Carulli (Reg. No. 30616); Robert D. Katz (Reg. No. 30141); and Peter J. Phillips (Reg. No. 29691)** and each of them, all c/o Cooper & Dunham of 1185 Avenue of the Americas, New York, New York 10036 (Tel. 212 278-0400), my attorneys, each with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, to transact all business in the Patent and Trademark Office connected herewith and to file any International Applications which are based thereon under the provisions of the Patent Cooperation Treaty.*

Please address all communications, and direct all telephone calls, regarding this application to:

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> *Tel. (212) 278-0400*

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

*Full name of sole or
first joint inventor*____ **Ted Richards** _____

*Inventor's signature*_____

*Citizenship*_____ **United States** _____ *Date of signature*_____

*Residence*_____ **Los Gatos, California.** _____

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